

CLAIMS

What is claimed is:

1. An apparatus for filtering a pressurized fluid, comprising:

a vertical housing having a transparent outer cover, a fluid inlet for communicating a pressurized fluid into said housing, and a fluid outlet for communicating said pressurized fluid downstream of said housing;

a filter element disposed within said housing between said fluid inlet and said fluid outlet for filtering said fluid;

a fluid impervious cover covering at least an upper portion of said filter element;

a relief valve mounted in a top of said filter element, and said relief valve opening at a predetermined pressure; and

said outer cover of said housing and said cover of said filter element having a predetermined volume of air captured therebetween, wherein the volume air is determined by the relationship  $PV = nRT$ , where P is pressure, V is volume, n is the number of molecules, R equals the gas constant, and T is the temperature, such that the level of fluid within said housing provides a visual indicator as to the overall condition of the filter element.

2. The apparatus stated in claim 1, further comprising:

said outer cover of said housing and said cover of said filter element

substantially coaxially positioned with respect to one another wherein the spacing between said outer cover of said housing and said cover of said filter element is less at an upper portion of said housing than at a lower portion of said housing.

3. The apparatus stated in claim 1, further comprising:

said outer cover of said housing having integral ribs formed therein for structurally supporting said outer cover.

4. The apparatus stated in claim 1, said fluid further comprising:

a convention diesel fuel.

5. The apparatus stated in claim 4, further comprising:

said diesel fuel pressurized between substantially 116 psi and 188 psi.

6. The apparatus stated in claim 5, further comprising:

said volume of air ranging between substantially 3.65 cubic inches and 2.25 cubic inches.

7. The apparatus stated in claim 1, said fluid further comprising:

a conventional motor oil.

8. The apparatus stated in claim 7, further comprising:

said motor oil pressurized between substantially 60 psi and 80 psi.

9. The apparatus stated in claim 8, further comprising:

said volume of air ranging between substantially 4.06 cubic inches and 3.04 cubic inches.

10. The apparatus stated in claim 1, further comprising:

a thermocouple coupled to said relief valve, and said thermocouple maintaining said relief valve in a closed position when the temperature within said housing is below a predetermined temperature.

11. A method for filtering pressurized fluid, the steps comprising:

providing a vertical housing having a transparent outer cover, a fluid inlet, and a fluid outlet;

providing a filter element within said housing between said fluid inlet and said fluid outlet wherein said filter element has a fluid impervious cover covering at least an upper portion of said filter element;

mounting a relief valve on top of said filter element, and said relief valve opening at a predetermined pressure;

establishing a predetermined volume of air within said housing between said outer cover of said housing and said cover of said filter element wherein the volume of air is determined by the relationship  $PV = nRT$ , wherein  $P$  is pressure,  $V$  is volume,  $n$  is the number of molecules,  $R$  equals the gas constant, and  $T$  is the temperature; and

supplying a pressurized fluid to said fuel inlet and allowing said pressurized fuel to exit through said fuel outlet wherein a level of fluid within said housing

provides a visual indicator as to the overall condition of the filter element.

12. The method stated in claim 11, wherein the steps further comprise:

spacing said outer cover of said housing and said cover of said filter element at a lesser distance between one another at an upper portion of said housing as compared to a lower portion of said housing.

13. The method stated in claim 11, wherein the steps further comprise:

structurally supporting said upper cover with integral ribs formed therein.

14. The method stated in claim 11, wherein the steps further comprise:

providing a conventional diesel fuel as said fluid.

15. The method stated in claim 14, wherein the steps further comprise:

pressurizing said diesel fuel between approximately 116 psi and 188 psi.

16. The method stated in claim 15, wherein the steps further comprise:

providing said volume of air in a range between approximately 3.65 cubic inches and 2.25 cubic inches.

17. The method stated in claim 11, wherein the steps further comprise:

providing a conventional motor oil as said fluid.

18. The method stated in claim 17, wherein the steps further comprise:

pressurizing said motor oil between approximately 60 psi and 80 psi.

19. The method stated in claim 18, wherein the steps further comprise:

providing said volume of air in a range between approximately 4.06 cubic inches and 3.04 cubic inches.

20. The method stated in claim 11, wherein the steps further comprise:

providing a thermocouple coupled to said relief valve while maintaining said relief valve in a closed position when the temperature within said housing is below a predetermined temperature.